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Validation of Organizational Isomorphism Model Using Fuzzy Delphi Method

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Article Info	Abstract
<p>Article type: Research Article</p> <p>Received: 30 Aug 2024</p> <p>Accepted: 16 Sep 2024</p> <p>Published online: 01 Dec 2024</p>	<p>The purpose of this research was to validate the organizational isomorphism model in sports federations using the Fuzzy Delphi Method. The method of this research was mixed and applied in terms of purpose, and the sampling method was theoretical. In the qualitative part, the process of data analysis continued until reaching theoretical saturation. The number of participants in the qualitative section was 12. The criteria for entering the research were to have at least two years of experience as a member of the board of directors of one of the sports federations. The research data collection tool was semi-structured interviews. The duration of each interview was between 15 and 75 minutes. Research validation was achieved through triangulation. Thematic analysis method was used to analyze the data. In the quantitative part, for the validation of the isomorphism model, a fuzzy Delphi group was formed with the presence of 12 sport managers and professors and elites in the field of sport management, all of whom had management experience in sports organizations. The research tool was the inventory of organizational isomorphism in sports federations, which was compiled based on the dimensions and indicators counted from the qualitative stage. The findings of the research showed that the isomorphism model of sports federations consisting of nine dimensions of pressures, interventionist factors, activist strategies, and consequences has sufficient and necessary validity. Therefore, managers of sports federations can rely on these findings to take steps to control and guide the phenomenon of isomorphism in their organization.</p>
<p>Keywords:</p>	<p>Fuzzy Delphi Method, Organizational Isomorphism, Organizational Pressure, Sports Federation, Validation</p>
<p>Cite this article:</p>	<p>Rezasoltani, N. , Moharramzadeh, M. , Azizian Kohan, N. and Naghizadeh-Baghi, A. (2024). Validation of Organizational Isomorphism Model Using Fuzzy Delphi Method. Archives in Sport Management and Leadership, 2(2), 78-103. doi: 10.22108/asml.2024.142642.1050</p>



Introduction

Organizations are the dominant forms of institutions that exist in all societies. In today's world, organizations surround all aspects of life, so it is logical to want to examine this phenomenon that is tied to all of our lives. The concept of organizational environment in modernist theories of organization is an entity that is outside the boundaries of the organization. The organizational environment imposes restrictions on the organization, which requires the organization to adapt to the environment in order to survive, and thus affects the organization. Every organization depends on its environment to some extent, but it is obvious that some organizations are more dependent on the environment than others. Therefore, the impact of the environment on the organization depends on the degree of vulnerability of the organization, which is caused by the degree of dependence on the environment (Robbins, 2013).

Isomorphism happens when organizations face pressure from other organizations or expectations in a specific social environment (Dos Santos et al., 2020). In other words, isomorphism is the process by which organizations become more similar to each other over time. This can happen through three main mechanisms: coercive isomorphism, mimetic isomorphism, and normative isomorphism (Luo & Qi, 2022).

DiMaggio and Powell, among the theorists of modern institutional theory and the authors of the book *Modern Institutionalism in Organizational Analysis*, in 1983 proposed the concept of isomorphism as a key concept in institutional theory (Farhangi et al., 2012). This Greek word is combined from the word *iso*, which means similarity in terms of size, shape, etc., and *morphosis*, which means shaping and making the same (Safarzadeh et al., 2022).

Isomorphism is a restrictive process that forces a unit in a group to match other units facing the same environmental conditions. Such an approach at the collective level shows that organizational characteristics are adjusted more and more in line with environmental characteristics; The number of organizations in a community depends on the capacity of the environment, and the variety of organizational forms is similar to the variety of the environment (Greenwood et al., 2012).

International sports organizations such as Fédération Internationale de Football Association (FIFA), the International Olympic Committee (IOC), etc. are also changing and evolving based on the pressures of their environment. One of the examples of isomorphism in sports organizations is the International Olympic Committee and its National Olympic Committees (NOCs). The IOC and NOCs have similar structures, rules and regulations designed to promote the Olympic movement and ensure fair play in international sporting events. This isomorphism is driven by a number of factors, including the need for consistency and standardization across countries and cultures, as well as the desire to maintain the integrity of the Olympic Games. Another example of isomorphism in sports organizations can be seen in the country's sports federations. These organizations often have similar structures, governance models, and decision-making processes. This homogeneity can be attributed to several factors, including the need for stability in various sports disciplines and also the desire to maintain credibility with stakeholders such as athletes, coaches, sponsors, and fans. Research has shown that isomorphism can have positive and negative effects on sports organizations. On the one hand, it can help promote consistency and standardization in different countries and cultures. On the other hand, it can lead to the lack of innovation and creativity in these organizations. As such, it is important for sports organizations to strike a balance between maintaining stability and promoting innovation in order to remain competitive in the changing global sports landscape (Pentifallo & VanWynsberghe, 2016).

One of the main pressures on international sports organizations is the need to balance commercial interests and ethical considerations. These organizations rely heavily on sponsorships and broadcasting rights to fund their operations and events, but they also have a responsibility to uphold values such as fair play, anti-doping measures and human rights. Another pressure is the growing media and public scrutiny of issues such as corruption, athlete welfare, and environmental impact. In addition, geopolitical tensions (the influence of geographic factors on government behavior) can also affect international sports organizations. For example, the IOC faced criticism for allowing Russia to participate in the 2018 Winter Olympics despite

evidence of state-sponsored doping. This decision was seen by some as a political move to prevent further tension between Russia and other countries. In general, international sports organizations face complex challenges that require careful attention to the interests of different stakeholders and maintaining their core values (Nagel et al., 2015).

Institutional isomorphism produces conformity and harmony in three ways: coercive isomorphism, mimetic isomorphism, and normative isomorphism. mimetic and normative isomorphism in international federations seems to lead to gradual change. In Clausen et al.'s (2018) study, mimetic pressures and isomorphism can be found in the subfields of commercialization and management practices (Clausen et al., 2018). While scholars tend to criticize international federations' trends towards commercialization and commercial goals (Croci & Forster, 2004; Forster, 2006; Katwala, 2000), two interrelated aspects to understanding the commercialization of federations International are important from a more comprehensive point of view. First, international federations need financial resources to carry out their mission. In the past, their main sources of income were membership fees and donations. Second, their response to the overall reduction in nonprofit budgets and the concurrent growing demand for sports viewing (Robinson, 2003) is to organize and hold more sporting events. From an operational perspective, organizing international federations with only membership fees and financial contributions becomes difficult, especially in the case of fast-growing sports.

Some researchers believe that although the pressures on managers have negative physical and psychological consequences for the manager and employees, it can have both positive and negative consequences for the organization. From the point of view of Kerlin et al. (2021), adapting to some pressures can lead to greater economic benefits for organizations, because they can target all resources to achieve financial results. Given that this pressure is rooted in social opinions, organizations have discretion over how much they conform to these expectations.

From the point of view of Abdul Majid et al. (2023), organizational pressures can be done in the form of direct and indirect pressures. Kerlin et al. (2021) also believe that where institutional pressures are positive and aligned with organizational goals, the strategic response of social enterprises was adaptability, which provided them with more legitimacy in that institutional field. Where institutional pressures were negative, social enterprises employed a range of strategic responses that those were often pretense, while at the center of work they moved toward their goals.

In light of frequent governance scandals in international sports federations, stakeholder calls for greater accountability have intensified, raising the question of what and how should be measured and monitored. Considering the important role of international sports federations from a social, economic and environmental point of view, Bayle and Clausen (2024) tried to provide a conceptual model to understand and measure the organizational performance of international federations. To understand the complexity of the activities and environment of international sports federations, definitions, performance dimensions and examples of appropriate actions were identified through a literature review and combined in a multidimensional process model. The proposed model includes four variables (input, output, result, feedback) and 12 dimensions. Their research has addressed the theoretical, methodological and experimental challenges in measuring the organizational performance of international sports federations. Several interviews were conducted with internal and external experts of international sports federations to test and adjust the conceptual model. They presented the first comprehensive analytical model that conceptualizes the organizational performance of international sports federations. Based on this model, each international federation is a unique ecosystem. The degree of professionalization, lifecycle stage, economic model, performance priorities, organizational culture and governance structure may vary significantly between international sports federations. These differences should be considered when operationalizing and running the model. In addition, employees' different perception of organizational performance turns into different foci and strategies. International sports federations facing governance issues will focus on governance practices, while international sports federations seeking to increase their global vast will focus on new markets. Therefore, the organizational performance of an international sports federation is related to specific goals and expectations. The federation board sets the goals (e.g., Strategic plan), but expectations and requirements may vary among stakeholders (e.g., National Federations, IOC, athletes, sponsors). Therefore, one of the possibilities of evaluating the

organizational performance of international sports federations is to analyze its capacity to achieve its goals and satisfy its stakeholders (Bayle & Clausen, 2024).

In sum, while there may be potential for isomorphism in shaping Iranian sports organizations, more research is needed to determine the extent to which this process occurs and its impact on the performance of these organizations.

Considering that relatively limited research has been done on institutional theory in the field of sports; Most of the researches conducted among foreign researches explained the institutional theory; Also, most of the internal research has been done in non-sports fields and around finance and accounting; Therefore, the result of this research can help sports organizations to identify organizational isomorphs, to be able to show appropriate and constructive reactions in the direction of the organization's missions and goals, and to formulate and implement strategies to adjust these pressures.

Because Iran's sports organizations, including the National Olympic Committee, the Ministry of Sports and Youth and the respective general offices, sports federations, provincial and city sports boards, etc., will have a superficial or deep reaction to the rules and beliefs that It is imposed on them from outside and leads to different types of organizational responses to institutional initiatives. Therefore, the researchers in this research aimed to achieve a model that expresses the institutional pressures on these organizations and shows the action and reaction in between by explaining the institutional theory in sports federations and analyzing the phenomenon of isomorphism in these organizations. Therefore, the purpose of the current research is to validate the organizational isomorphism model in sports federations.

Research Methods

The current research was applied in terms of purpose and in terms of data, it was a mixed method (qualitative and quantitative) using thematic analysis and Fuzzy Delphi Method. In the qualitative part, the participants included top managers of sports federations (president and members of the federation's board of directors). The criterion for entering the research was to have at least two years of experience as a member of the board of directors of one of the sports federations. The sampling method in this stage was non-random, purposeful and based on theoretical sampling. The selection of the research sample continued until reaching the theoretical saturation limit (12 people). The duration of each interview was between 15 and 75 minutes. Research validation was achieved through triangulation.

Several strategies were used to validate this research. At first, according to the recommendation of Skinner et al. (2020), the interviewers were in deep and effective interaction with the participants. This approach was aimed at increasing the participants' understanding of the context and research questions and helping to elicit more accurate and realistic answers. The second strategy was to use the triangulation strategy.

Wolcott (2005) believes that triangulation is the best strategy to strengthen the internal validity of a qualitative research. In this research, two types of triangulations were considered. triangulation of participants in which a diverse range of people from different sports federations were selected as participants. Second, triangulation of the analysts, in which two people as analysts did the coding process. The third strategy according to the recommendation of Cowan and Taylor (2016) was the method of critical friends (Cowan & Taylor, 2016). For this purpose, after coding, two expert friends criticized the coding process. The fourth strategy was to use rich description in the research process. According to the recommendations of Maxwell (1992), the research process, coding and analysis process are clearly explained step by step. Rich and in-depth description is considered as a method of establishing external validity and transferability of findings to other sectors, situations and people.

In the quantitative part, the sample of the research includes sport managers, professors and elites in the field of sport management who had experience in managing sports organizations. The number of Delphi group members was 12 people. One of the most common qualitative forecasting techniques is the Delphi method. This method was developed in the 1960s by the Rand Corporation in Santa Monica, California. The

name comes from the ancient Greek oracles of Delphi, which were famous for predicting the future. His technique attempts to develop predictions through "group consensus".

In many real situations, the judgment of experts cannot be expressed and interpreted as definitive quantitative numbers; In other words, definitive data and numbers are insufficient to model real-world systems due to ambiguity and uncertainty in decision-makers' judgments. In this regard, the theory of fuzzy sets, which was presented by Lotfizadeh in 1965, is a suitable tool to deal with ambiguity and uncertainty in the decision-making process in order to overcome this problem. Therefore, in this research, the fuzzy Delphi method has been used to verify and screen the identified indicators. This method is a combination of the Delphi method and the theory of fuzzy sets presented by Ishikawa et al. (Mousavi et al., 2015).

The fuzzy Delphi method can be described as follows:

1. This approach uses a group of experts who do not meet each other. It is usually used for long term forecasting.

2. People usually fax/mail or phone their answers, which greatly increases the speed of forecast generation.

3. The method is based on an iterative approach that includes two or three iterations.

4. In the first round, all the people are asked a series of questions and then the results are summarized together.

These aggregated results are then returned to each panelist for a second round. They are then asked if they want to change their prediction. This process continues until either no one changes their prediction or there is a level of general agreement (Cheng & Lin, 2002). One of the advantages of the Delphi method is its lack of complexity. Because it does not require advanced mathematical skills and implementation and analysis, but only requires a person who is aware of issues and Delphi technology and creativity in project design (Sanayeie et al., 2011).

The steps of the fuzzy Delphi method are:

1- Identifying research concepts through a comprehensive review of the theoretical foundations of research

2- Gathering experts' opinions: In this step, a decision-making group composed of experts related to the research topic is formed and a questionnaire is sent to this group in order to check the relationship of the identified concepts with the main topic of the research, in which the linguistic variables of Table 1, They are used to express the importance of each index. In this research, triangular fuzzy numbers according to Table 1 have been used (Mousavi et al., 2015).

Table 1- 5point Fuzzy Scale

Linguistic phrases	fuzzy scale
Very low	(0,0,0.25)
low	(0,0.25,0.5)
Medium	(0.25, 0.5, 0.75)
high	(0.5,0.75,1)
Very high	(0.75,1,1)

3- Verification and screening of indicators: This is done by comparing a fuzzy score value (A) of α -cut 0.5 (Cheng & Lin, 2002; Marzukhi et al., 2023). In this research, the value of 0.5 is considered. In this regard, the triangular fuzzy values of experts' opinions should be calculated first, and then their fuzzy

average should be calculated to calculate the average of n respondents' opinions. In general, the fuzzy number τ is calculated for each of the indicators using the following relations (Rahadari & Nasr, 2017; Saifuddin et al., 2017).

$$1 \quad \tilde{\tau}_{ij} = (a_{ij}, b_{ij}, c_{ij}), \quad i = 1, 2, \dots, n \quad j = 1, 2, \dots, m$$

$$2 \quad a_j = \sum \frac{a_{ij}}{n}$$

$$3 \quad b_j = \sum \frac{b_{ij}}{n}$$

$$4 \quad c_j = \sum \frac{c_{ij}}{n}$$

In the above relationships, the index i refers to the expert and the index j refers to the decision-making index. Also, the defuzzification value of the average fuzzy number is obtained from the following equation.

$$5- \quad Crisp = \frac{a + b + c}{3}$$

If the value of A yielded is less than the α -cut value = 0.5, the item will be rejected because it shows the agreement of the experts in rejecting the item, but if the value of A exceeds the α -cut value = 0.5, the item will be accepted because it shows experts' consensus to accept the item.

4- Consensus stage and completion of fuzzy Delphi: In this stage, if the average difference of two consecutive rounds of fuzzy Delphi is less than 0.1, fuzzy Delphi is completed (Cheng & Lin, 2002).

The research tool was an inventory derived from the qualitative section. For this purpose, a preliminary A researcher-made questionnaire was extracted from the main and sub-themes of the qualitative section and provided to the members of the Delphi group. This questionnaire included five main sections:

1. Demographic information which included 4 demographic questions (gender, education, age and experience).

2. The pressures on the federations which consisted of 9 dimensions and 31 items: political pressures 6 items, social pressures 3 items, economic pressures 3 items, equipment and technology pressures 3 items, ideological and cultural pressures 2 items, legal, and international pressures was 3 items, structural and managerial pressures were 6 items, intra-organizational pressures were 3 items, pressure from stakeholders and competitors were 2 items.

3. interventionist factors which consisted of 3 dimensions and 8 items: social interventionist were 3 items; specialized interventionist were 2 items and sovereign interventionist were 3 items.

4. Activist strategies of federations, which has 2 dimensions and 12 items: internal reactions with 6 items and external reactions with 6 items.

5. Consequences of isomorphism, which consisted of 2 dimensions and 4 items: positive consequences of 2 items and negative consequences of 2 items.

Data Analysis

Thematic analysis method was used to analyze the data. With the help of this method, it is possible to understand the patterns in the data, which are text or interviews. In the thematic analysis method, a back-and-forth path is created between a set of data, codes and their analysis. The first step in data analysis was open coding. At this stage, the data obtained from the interviews and documents were carefully examined and the main themes, subthemes and concepts were determined; In other words, after conducting each interview and analyzing the documents, concepts were searched, and suitable labels were chosen for them. In the second stage, the concepts were put together based on commonalities or homogeneity and synonymy. In other words, the primary codes and categories that were created in open coding were compared with each other and while merging the codes that were conceptually similar to each other, the categories that were related to each other were also centered around were found in common (formation of categories). Categorization is to overcome the dispersion of data and arrive at the form of data and the types of things that are represented in the findings. In the next stage, categories that needed improvement, adjustment or further development were modified and created by organizing related categories with each other topics or themes. The formation of concepts, categories and topics was a repetitive and back-and-forth process. In the quantitative stage, the fuzzy Delphi method was used to confirm the extracted themes and the obtained model. MAXQDA version 20 software was used to analyze the data of the qualitative stage and Excel 365 software was used for the analysis of the quantitative stage.

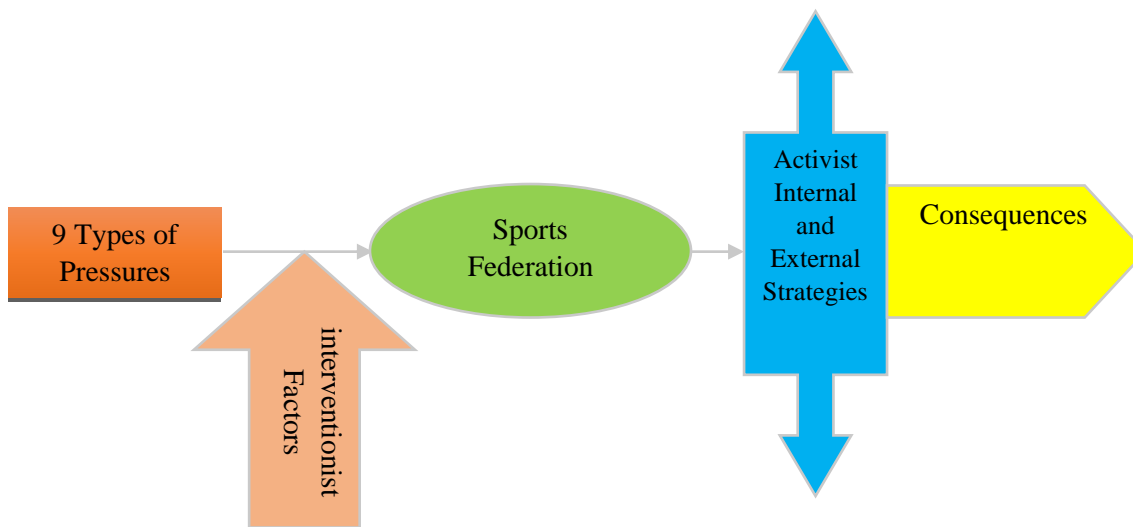


Figure 1. Research Model (Organizational Isomorphism in Sports Federations)

Findings and Discussion

The demographic information of the participants in qualitative section showed that 34% of people were between the ages of 46 - 50, 25% of the people were between the ages of 41-45, and 17% of the people were between the ages of 66-70, 8% of the people were between the ages of 36-40, 51-55, and 56-60 years old.

The demographic information of the participants in the fuzzy Delphi panel showed that 59% of people were between the ages of 36 - 40, 17% of the people were between the ages of 46-50, and 8% of the people were between the ages of 30-35, 51-55, and 41-45 years old.

After coding the interview texts, 414 open codes, 4 main categories, 16 subcategories, and 55 concepts (Sub-Criterion) were counted. Fuzzy Delphi method was used to check and confirm the isomorphism model of sports federations obtained from the analysis of qualitative findings. For this purpose, a Delphi panel

composed of experts in this field was formed and concepts extracted from thematic analysis in the form of an inventory including 55 indicators affecting the isomorphism of sports federations were provided to 12 experts. then they were asked for their opinion on each sub-criterion in the form of verbal variables included in the questionnaire from very little to very much (Table 1). The preliminary results of expert opinions are given in Table 2.

Table 2- The results of expert opinions

Row	Sub-Criterion	Importance				
		Very low	low	Medium	high	Very high
1	Pressure from parties and groups (unions, informal groups, mafia, appointment engineering, etc.)	0	1	2	8	1
2	Pressure from government institutions (directors of the Ministry of Sports, National Olympic Committee, etc.)	0	0	1	4	7
3	Pressure from security and law enforcement agencies (intelligence, judiciary, prosecutor, etc.)	0	3	5	2	2
4	Pressure from regulatory institutions (Inspection Organization, Parliament, etc.)	0	3	5	2	2
5	Political pressures within the organization (security, federation members, instrumental view of sports, etc.)	0	1	2	7	2
6	Foreign political pressures (international organizations, and the fusion of sports and politics, asylum of athletes due to political pressures, existing sanctions, etc.)	0	0	4	6	2
7	Media pressure (journalists, social media, public media, duality of media and sponsors, etc.)	0	2	4	5	1
8	Pressure from the fans (loss of global quotas, result-orientation of the federation)	0	2	3	4	3
9	The pressure of the general society (social activists, political expectations of the people, the pressure of social culture and society's consequentialism...)	0	2	4	5	1
10	Pressure due to financial constraints	0	0	1	2	9
11	Pressure caused by inflation and high prices (equipment, manpower, technology, etc.)	0	0	1	4	7
12	Pressure caused by financial exchange problems	0	0	3	4	5
13	The pressure caused by the limitations of infrastructure and sports facilities	0	1	2	7	2
14	The pressure caused by the lack of sports facilities and equipment	0	0	3	7	2
15	Pressure from technology	0	0	5	7	0
16	The pressure related to the challenges of athletes' hijab	0	1	3	6	2
17	Pressure from religious groups (Friday prayer imams' tribune, religious parties, etc.)	0	0	4	6	2
18	Pressures from international institutions (conflict of laws, hardware standards, etc.)	0	0	3	8	1
19	Pressure from compliance with upstream documents and standards	0	0	5	7	0
20	Internal legal pressures (pressure to circumvent the law, gap between established laws and implementation, inconsistency of the federation's directives with other organizations)	0	0	5	6	1
21	The pressure caused by the structure (organizational structure of the federation, conflict of interests of sports organizations, parallel work, lack of coordination between sports structures in the country, etc.)	0	0	3	7	2
22	The pressure of managerial factors (managerial changes and styles of managers, pressure lever of non-scientific view, manager-centeredness of federations, etc.)	0	0	2	6	4
23	Pressure related to strategic and forward-looking plans (lack of strategic plan, useless training courses, lack of planning power due to lack of managerial stability,	0	0	2	7	3

Row	Sub-Criterion	Importance				
		Very low	low	Medium	high	Very high
	etc.)					
24	Pressure caused by incorrect organizing (organizing human resources, organizing resources, waste of resources and costs as a result of parallel work, etc.)	0	0	0	11	1
25	The pressure related to the maintenance of human resources (professional development, frustration among managers and athletes, emigration of sports elites, etc.)	0	0	0	11	1
26	Recruiting and employing human resources (Pressure to arrange human resources, failure to respect the principle of meritocracy, inappropriate job rotations, etc.)	0	0	1	9	2
27	The pressure caused by the atmosphere and culture ruling the federation (atmosphere of underemployment, corruption, indiscipline, undermining, Pull the rug from under somebody, etc.)	0	1	3	4	4
28	The pressure of power sources within the federation	0	2	3	4	3
29	The pressure of informal groups formed within the federation	0	3	5	1	3
30	Stakeholder pressures (sponsors, referees, coaches, etc.)	0	1	4	6	1
31	The pressure of job competitors (federations of regional countries, domestic federations, etc.)	0	2	6	3	1
32	Profit-seeking groups (agents, etc.)	0	2	5	5	0
33	Official and unofficial media (media, official news agencies, official and unlicensed networks, etc.)	0	1	5	3	3
34	Intervention of people and society (influencers, social groups, social activists, fans, etc.)	0	1	5	5	1
35	Sports community (Experts, experts, university professors, famous athletes and coaches)	1	1	1	7	2
36	Key stakeholders of the federation (sports clubs, sponsors, national referees, national team players)	0	2	1	5	4
37	International sports organizations (Court of Arbitration for Sport, international federations, international organizations such as the IOC)	1	0	0	9	2
38	Interference of regulatory, security and judicial institutions	0	1	3	5	3
39	interference of Government and governance (interventional role of the government, level of government support)	0	1	2	3	6
40	Interaction and negotiation with individuals, groups, organizations (removal of pressure, interaction and negotiation)	0	2	3	4	3
41	Communication with sources of power (high government officials, etc.)	0	1	1	6	4
42	Media trick	0	1	2	6	3
43	Compliance with laws and regulations	2	2	1	3	4
44	Compliance with the upstream institution (even against the regulations)	0	1	4	6	1
45	Amendment of laws or evasion of laws (circumventing the law, approving laws in the board of directors, etc.)	0	3	3	4	2
46	Dishonesty of managers (justification, creating statistics, lies, etc.)	0	5	3	1	3
47	Time management (procrastination, buying time, etc.)	0	2	5	3	2
48	Resource management (balance of financial resources, Pursuing the attraction of financial resources, entry of expert staff, etc.)	0	2	5	2	3
49	Change management in processes and procedures (change of structure, change of policy, change of process, etc.)	0	3	3	5	1

Row	Sub-Criterion	Importance				
		Very low	low	Medium	high	Very high
50	Surrender (accepting pressure, accepting changes, etc.)	1	3	4	2	2
51	Contingency management (imitating competitors, reciprocity, etc., according to the conditions)	0	2	3	6	1
52	Positive extra-organizational consequences (changes and revisions of laws and macro policies, legality of elections, positive consequences of pressure from upstream institutions, the role of the media in informing...)	0	0	1	8	3
53	Positive intra-organizational consequences (specialization, income generation, empowerment, advantage of technology pressure, professional development of athletes, etc.)	0	1	2	5	4
54	Negative consequences related to clubs and athletes (withdrawal, asylum, and short life of the athlete, getting poor results and poor performance in sports, etc.)	0	1	2	7	2
55	Negative consequences related to the organization (reduction of dispatches, reduction of quota, suspension, exorbitant cost, functionalization of unrealistic achievements, uncertainty about the future...)	0	2	1	5	4

Table 2 shows the number of experts' opinions on research indicators. we first converted the responses into fuzzy numbers based on the spectrum shown in Table 1. Then, based on relations 2 to 4, the fuzzy average of scores was obtained and then it was converted into a crisp number by the following relationship. The results of all defuzzification calculations in the first stage of Delphi are given in Table 3. For example, the criterion of row 1 of fuzzy Delphi calculations is as follows:

0 experts gave a very low score, 1 expert gave a low score, 2 experts gave a medium score, 8 experts gave a high score, and 1 expert gave a very high score. Therefore, the fuzzy and non-fuzzy score is as follows:

Fuzzy score

$$= \frac{0 \times (0,0,0.25) + 1 \times (0,0.25,0.5) + 2 \times (0.25,0.5,0.75) + 8 \times (0.5,0.75,1) + 1 \times (0.75,1,1)}{12}$$

$$= (0.438,0.688,0.917)$$

$$\text{crisp fuzzy score} = \frac{0.438 + 0.688 + 0.917}{3} = 0.681$$

The results show the confirmation of all indicators, which are shown in Table 3 of the results. Also, the radar diagram of the first stage survey is given in Figure 2.

Table 3 - The results of the first phase of fuzzy Delphi

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result
1	Political Pressures	Pressure from parties and groups (unions, informal groups, mafia, appointment engineering, etc.)	C1	0.438	0.688	0.917	0.681	confirmed

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result	
2	Social Pressures	Pressure from government institutions (directors of the Ministry of Sports, National Olympic Committee, etc.)	C2	0.625	0.875	0.979	0.826	confirmed	
3		Pressure from security and law enforcement agencies (intelligence, judiciary, prosecutor, etc.)	C3	0.313	0.563	0.771	0.549	confirmed	
4		Pressure from regulatory institutions (Inspection Organization, Parliament, etc.)	C4	0.313	0.563	0.771	0.549	confirmed	
5		Political pressures within the organization (security, federation members, instrumental view of sports, etc.)	C5	0.458	0.708	0.917	0.694	confirmed	
6		Foreign political pressures (international organizations, and the fusion of sports and politics, asylum of athletes due to political pressures, existing sanctions, etc.)	C6	0.458	0.708	0.917	0.694	confirmed	
7		Media pressure (journalists, social media, public media, duality of media and sponsors, etc.)	C7	0.354	0.604	0.833	0.597	confirmed	
8		Pressure from the fans (loss of global quotas, result-orientation of the federation)	C8	0.417	0.667	0.854	0.646	confirmed	
9		The pressure of the general society (social activists, political expectations of the people, the pressure of social culture and society's consequentialism...)	C9	0.354	0.604	0.833	0.597	confirmed	
10		Economic Pressures	Pressure due to financial	C10	0.667	0.917	0.979	0.854	confirmed

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result
11	Equipment and Technology	constraints Pressure caused by inflation and high prices (equipment, manpower, technology, etc.)	C11	0.625	0.875	0.979	0.826	confirmed
12		Pressure caused by financial exchange problems	C12	0.542	0.792	0.938	0.757	confirmed
13		The pressure caused by the limitations of infrastructure and sports facilities	C13	0.458	0.708	0.917	0.694	confirmed
14		The pressure caused by the lack of sports facilities and equipment	C14	0.479	0.729	0.938	0.715	confirmed
15		Pressure from technology	C15	0.396	0.646	0.896	0.646	confirmed
16	Ideological and Cultural Pressures	The pressure related to the challenges of athletes' hijab	C16	0.438	0.688	0.896	0.674	confirmed
17		Pressure from religious groups (Friday prayer imams' tribune, religious parties, etc.)	C17	0.458	0.708	0.917	0.694	confirmed
18		Pressures from international institutions (conflict of laws, hardware standards, etc.)	C18	0.458	0.708	0.938	0.701	confirmed
19		Pressure from compliance with upstream documents and standards	C19	0.396	0.646	0.896	0.646	confirmed
20	Legal and International Pressures	Internal legal pressures (pressure to circumvent the law, gap between established laws and implementation, inconsistency of the federation's directives with other organizations)	C20	0.417	0.667	0.896	0.660	confirmed
21	Pressure Related to Structural and Managerial Dimensions	The pressure caused by the structure (organizational structure of the federation, conflict of interests of sports	C21	0.479	0.729	0.938	0.715	confirmed

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result
22	Internal Pressures	organizations, parallel work, lack of coordination between sports structures in the country, etc.) The pressure of managerial factors (managerial changes and styles of managers, pressure lever of non-scientific view, manager-centeredness of federations, etc.)	C22	0.542	0.792	0.958	0.764	confirmed
23		Pressure related to strategic and forward-looking plans (lack of strategic plan, useless training courses, lack of planning power due to lack of managerial stability, etc.)	C23	0.521	0.771	0.958	0.750	confirmed
24		Pressure caused by incorrect organizing (organizing human resources, organizing resources, waste of resources and costs as a result of parallel work, etc.)	C24	0.521	0.771	1.000	0.764	confirmed
25		The pressure related to the maintenance of human resources (professional development, frustration among managers and athletes, emigration of sports elites, etc.)	C25	0.521	0.771	1.000	0.764	confirmed
26		Recruiting and employing human resources (Pressure to arrange human resources,	C26	0.521	0.771	0.979	0.757	confirmed
27		failure to respect the principle of meritocracy, inappropriate job rotations, etc.)	C27	0.479	0.729	0.896	0.701	confirmed
28		The pressure caused by the	C28	0.417	0.667	0.854	0.646	confirmed

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result
29	Pressure from Stakeholders and Competitors	atmosphere and culture ruling the federation (atmosphere of underemployment, corruption, indiscipline, undermining, Pull the rug from under somebody, etc.) The pressure of power sources within the federation	C29	0.333	0.583	0.771	0.563	confirmed
30		The pressure of informal groups formed within the federation	C30	0.396	0.646	0.875	0.639	confirmed
31		Stakeholder pressures (sponsors, referees, coaches, etc.)	C31	0.313	0.563	0.792	0.556	confirmed
32		The pressure of job competitors (federations of regional countries, domestic federations, etc.)	C32	0.313	0.563	0.813	0.563	confirmed
33	Social Interventionists	Profit-seeking groups (agents, etc.)	C33	0.417	0.667	0.854	0.646	confirmed
34		Official and unofficial media (media, official news agencies, official and unlicensed networks, etc.)	C34	0.375	0.625	0.854	0.618	confirmed
35	Specialized Interventionists	Intervention of people and society (influencers, social groups, social activists, fans, etc.)	C35	0.438	0.667	0.875	0.660	confirmed
36		Sports community (Experts, experts, university professors, famous athletes and coaches)	C36	0.479	0.729	0.896	0.701	confirmed
37		Key stakeholders of the federation (sports clubs, sponsors, national referees, national team players)	C37	0.500	0.729	0.938	0.722	confirmed
38	Sovereign Interventionists	International sports organizations (Court of Arbitration for Sport, international	C38	0.458	0.708	0.896	0.688	confirmed

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result
39	External Reactions	federations, international organizations such as the IOC) Interference of regulatory, security and judicial institutions	C39	0.542	0.792	0.917	0.750	confirmed
40		interference of Government and governance (interventional role of the government, level of government support)	C40	0.417	0.667	0.854	0.646	confirmed
41		Interaction and negotiation with individuals, groups, organizations (removal of pressure, interaction and negotiation)	C41	0.521	0.771	0.938	0.743	confirmed
42		Communication with sources of power (high government officials, etc.)	C42	0.479	0.729	0.917	0.708	confirmed
43		Media trick	C43	0.396	0.604	0.771	0.590	confirmed
44		Compliance with laws and regulations	C44	0.396	0.646	0.875	0.639	confirmed
45		Compliance with the upstream institution (even against the regulations)	C45	0.354	0.604	0.813	0.590	confirmed
46		Amendment of laws or evasion of laws (circumventing the law, approving laws in the board of directors, etc.)	C46	0.292	0.542	0.729	0.521	confirmed
47		Dishonesty of managers (justification, creating statistics, lies, etc.)	C47	0.354	0.604	0.813	0.590	confirmed
48		Time management (procrastination, buying time, etc.)	C48	0.375	0.625	0.813	0.604	confirmed
49	Internal Reactions	Resource management (balance of financial resources, Pursuing the attraction of financial resources,	C49	0.333	0.583	0.813	0.576	confirmed

Row	Dimension	Index name	Index code	Fuzzy score			Crisp fuzzy score	Result
50	Positive Consequences	entry of expert staff, etc.) Change management in processes and procedures (change of structure, change of policy, change of process, etc.)	C50	0.292	0.521	0.729	0.514	confirmed
51		Surrender (accepting pressure, accepting changes, etc.)	C51	0.375	0.625	0.854	0.618	confirmed
52		Contingency management (imitating competitors, reciprocity, etc., according to the conditions)	C52	0.542	0.792	0.979	0.771	confirmed
53		Positive extra-organizational consequences (changes and revisions of laws and macro policies, legality of elections, positive consequences of pressure from upstream institutions, the role of the media in informing...)	C53	0.500	0.750	0.917	0.722	confirmed
54		Positive intra-organizational consequences (specialization, income generation, empowerment, advantage of technology pressure, professional development of athletes, etc.)	C54	0.458	0.708	0.917	0.694	confirmed
55	Negative Consequences	Negative consequences related to clubs and athletes (withdrawal, asylum, and short life of the athlete, getting poor results and poor performance in sports, etc.)	C55	0.479	0.729	0.896	0.701	confirmed

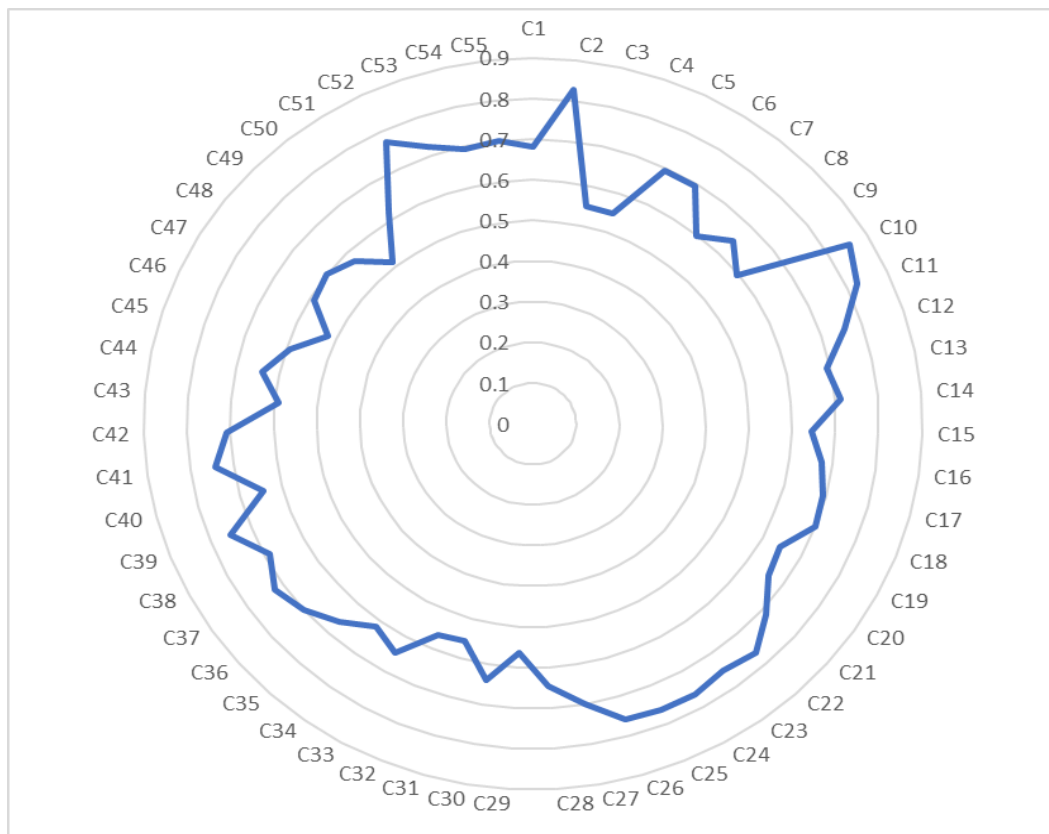


Figure 2 . The results of the first phase of the fuzzy Delphi survey

There are two important aspects in fuzzy Delphi technique, which are triangular fuzzy numbers and defuzzification process. Triangular fuzzy number is used to generate fuzzy scale (like Likert scale) to translate linguistic variable into fuzzy number. The level of agreement for the fuzzy scale is odd. The obtained Likert scale data were analyzed using Excel to obtain a more organized tabulation. All data were transformed into triangular fuzzy numbers. There are two examples of fuzzy scales, which are five-point and seven-point fuzzy scales. To conduct this research, the researcher used a fuzzy five-point scale.

As can be seen in [Figure 2](#), the highest level of experts' agreement was with the components of pressure from government institutions, pressure caused by financial restrictions, and pressure caused by inflation and high prices, and the lowest were with the components of dishonesty of managers, and submission as internal reactions of the federation.

In the next step, a questionnaire containing the opinions of the first stage of the experts and the opinion of each expert about each item was sent to all members of the fuzzy Delphi panel, and they were asked to see the opinions of other experts on each item (the number of people who chose each option) and if they are willing to change their minds and apply their new ideas. According to [Cheng and Lin \(2002\)](#), in order to check the stopping of the survey stages, it is necessary that the difference of fuzzy Definite score of the two survey stages be less than 0.1. Therefore, according to the approval of all sub-criteria from the point of view of experts in the first stage, to check the permission to stop the fuzzy Delphi panel, a second survey was conducted, and the results were analyzed as in the first stage with the help of the relationships mentioned in the first stage, which can be seen in [Table 4](#). Then, the difference between the first and second stages was checked, and the final result is presented in [Table 5](#). Considering that the amount of this difference in all sub-criteria is less than 0.1. The fuzzy Delphi process was stopped, and the organizational isomorphism model obtained from this research was confirmed ([Cheng & Lin,2002](#)).

Table 4- The results of the second phase of fuzzy Delphi

Row	Dimension	Index Name	Index Code	Fuzzy Score			Definite Score	Status	
1	Political Pressures	Pressure from parties and groups (unions, informal groups, mafia, appointment engineering, etc.)	C1	0.521	0.771	1.000	0.764	confirmed	
2		Pressure from government institutions (directors of the Ministry of Sports, National Olympic Committee, etc.)	C2	0.646	0.896	0.979	0.840	confirmed	
3		Pressure from security and law enforcement agencies (intelligence, judiciary, prosecutor, etc.)	C3	0.313	0.563	0.771	0.549	confirmed	
4		Pressure from regulatory institutions (Inspection Organization, Parliament, etc.)	C4	0.313	0.563	0.771	0.549	confirmed	
5		Political pressures within the organization (security, federation members, instrumental view of sports, etc.)	C5	0.500	0.750	0.958	0.736	confirmed	
6		Foreign political pressures (international organizations, and the fusion of sports and politics, asylum of athletes due to political pressures, existing sanctions, etc.)	C6	0.458	0.708	0.938	0.701	confirmed	
7		Media pressure (journalists, social media, public media, duality of media and sponsors, etc.)	C7	0.333	0.583	0.833	0.583	confirmed	
8		Social Pressures	Pressure from the fans (loss of global quotas, result-orientation of the federation)	C8	0.417	0.667	0.854	0.646	confirmed
9			The pressure of the general society (social activists, political expectations of the people, the pressure of social culture and society's consequentialism...)	C9	0.333	0.583	0.833	0.583	confirmed
10		Economic Pressures	Pressure due to financial constraints	C10	0.667	0.917	0.979	0.854	confirmed
11			Pressure caused by inflation and high prices (equipment,	C11	0.646	0.896	0.979	0.840	confirmed

Row	Dimension	Index Name	Index Code	Fuzzy Score			Definite Score	Status
12	Equipment and Technology	manpower, technology, etc.) Pressure caused by financial exchange problems	C12	0.542	0.792	0.938	0.757	confirmed
13		The pressure caused by the limitations of infrastructure and sports facilities	C13	0.438	0.688	0.917	0.681	confirmed
14		The pressure caused by the lack of sports facilities and equipment	C14	0.458	0.708	0.938	0.701	confirmed
15		Pressure from technology	C15	0.396	0.646	0.896	0.646	confirmed
16		The pressure related to the challenges of athletes' hijab	C16	0.438	0.688	0.896	0.674	confirmed
17	Ideological and Cultural Pressures	Pressure from religious groups (Friday prayer imams' tribune, religious parties, etc.)	C17	0.458	0.708	0.917	0.694	confirmed
18		Pressures from international institutions (conflict of laws, hardware standards, etc.)	C18	0.458	0.708	0.958	0.708	confirmed
19	Legal and International Pressures	Pressure from compliance with upstream documents and standards	C19	0.396	0.646	0.896	0.646	confirmed
20		Internal legal pressures (pressure to circumvent the law, gap between established laws and implementation, inconsistency of the federation's directives with other organizations)	C20	0.438	0.688	0.938	0.688	confirmed
21		The pressure caused by the structure (organizational structure of the federation, conflict of interests of sports organizations, parallel work, lack of coordination between sports structures in the country, etc.)	C21	0.479	0.729	0.938	0.715	confirmed
22	Pressure Related to Structural and Managerial Dimensions	The pressure of managerial factors (managerial changes and styles of managers, pressure lever of non-scientific view, manager-centeredness of	C22	0.563	0.813	0.979	0.785	confirmed

Row	Dimension	Index Name	Index Code	Fuzzy Score			Definite Score	Status
23		federations, etc.) Pressure related to strategic and forward-looking plans (lack of strategic plan, useless training courses, lack of planning power due to lack of managerial stability, etc.)	C23	0.521	0.771	0.958	0.750	confirmed
24		Pressure caused by incorrect organizing (organizing human resources, organizing resources, waste of resources and costs as a result of parallel work, etc.)	C24	0.500	0.750	1.000	0.750	confirmed
25		The pressure related to the maintenance of human resources (professional development, frustration among managers and athletes, emigration of sports elites, etc.)	C25	0.500	0.750	1.000	0.750	confirmed
26		Recruiting and employing human resources	C26	0.500	0.750	1.000	0.750	confirmed
27		(Pressure to arrange human resources, failure to respect the principle of meritocracy, inappropriate job rotations, etc.)	C27	0.479	0.729	0.896	0.701	confirmed
28	Internal Pressures	The pressure caused by the atmosphere and culture ruling the federation (atmosphere of underemployment, corruption, indiscipline, undermining, Pull the rug from under somebody, etc.)	C28	0.458	0.708	0.896	0.688	confirmed
29		The pressure of power sources within the federation	C29	0.375	0.625	0.813	0.604	confirmed
30	Pressure from Stakeholders and Competitors	The pressure of informal groups formed within the federation	C30	0.417	0.667	0.896	0.660	confirmed
31		Stakeholder pressures (sponsors, referees, coaches, etc.)	C31	0.313	0.563	0.792	0.556	confirmed
32	Social Interventionists	The pressure of job competitors (federations of	C32	0.313	0.563	0.813	0.563	confirmed

Row	Dimension	Index Name	Index Code	Fuzzy Score			Definite Score	Status
33	Specialized Interventionists	regional countries, domestic federations, etc.) Profit-seeking groups (agents, etc.)	C33	0.396	0.646	0.854	0.632	confirmed
34		Official and unofficial media (media, official news agencies, official and unlicensed networks, etc.)	C34	0.354	0.604	0.854	0.604	confirmed
35		Intervention of people and society (influencers, social groups, social activists, fans, etc.)	C35	0.438	0.667	0.896	0.667	confirmed
36		Sports community (Experts, experts, university professors, famous athletes and coaches)	C36	0.479	0.729	0.896	0.701	confirmed
37		Key stakeholders of the federation (sports clubs, sponsors, national referees, national team players)	C37	0.500	0.729	0.938	0.722	confirmed
38	Sovereign Interventionists	International sports organizations (Court of Arbitration for Sport, international federations, international organizations such as the IOC)	C38	0.458	0.708	0.896	0.688	confirmed
39		Interference of regulatory, security and judicial institutions	C39	0.542	0.792	0.917	0.750	confirmed
40	External Reactions	interference of Government and governance (interventional role of the government, level of government support)	C40	0.458	0.708	0.896	0.688	confirmed
41		Interaction and negotiation with individuals, groups, organizations (removal of pressure, interaction and negotiation)	C41	0.500	0.750	0.938	0.729	confirmed
42		Communication with sources of power (high government officials, etc.)	C42	0.479	0.729	0.917	0.708	confirmed
43		Media trick	C43	0.396	0.604	0.771	0.590	confirmed
44		Compliance with laws and regulations	C44	0.396	0.646	0.875	0.639	confirmed
45		Compliance with the upstream institution	C45	0.354	0.604	0.813	0.590	confirmed

Row	Dimension	Index Name	Index Code	Fuzzy Score			Definite Score	Status
46		(even against the regulations) Amendment of laws or evasion of laws (circumventing the law, approving laws in the board of directors, etc.)	C46	0.292	0.542	0.729	0.521	confirmed
47		Dishonesty of managers (justification, creating statistics, lies, etc.)	C47	0.375	0.625	0.833	0.611	confirmed
48		Time management (procrastination, buying time, etc.)	C48	0.375	0.625	0.833	0.611	confirmed
49	Internal Reactions	Resource management (balance of financial resources, Pursuing the attraction of financial resources, entry of expert staff, etc.)	C49	0.313	0.563	0.813	0.563	confirmed
50		Change management in processes and procedures (change of structure, change of policy, change of process, etc.)	C50	0.271	0.500	0.729	0.500	confirmed
51		Surrender (accepting pressure, accepting changes, etc.)	C51	0.396	0.646	0.896	0.646	confirmed
52		Contingency management (imitating competitors, reciprocity, etc., according to the conditions)	C52	0.500	0.750	0.979	0.743	confirmed
53	Positive Consequences	Positive extra-organizational consequences (changes and revisions of laws and macro policies, legality of elections, positive consequences of pressure from upstream institutions, the role of the media in informing...)	C53	0.542	0.792	0.979	0.771	confirmed
54	Negative Consequences	Positive intra-organizational consequences (specialization, income generation, empowerment, advantage of technology pressure, professional development of athletes, etc.)	C54	0.521	0.771	1.000	0.764	confirmed

Row	Dimension	Index Name	Index Code	Fuzzy Score			Definite Score	Status
55		Negative consequences related to clubs and athletes (withdrawal, asylum, and short life of the athlete, getting poor results and poor performance in sports, etc.)	C55	0.542	0.792	0.979	0.771	confirmed

Table 5- Difference of crisp fuzzy Score of the first stage and the second stage

Row	Crisp Fuzzy Score of The First Stage	Crisp Fuzzy Score of The Second Stage	Difference of Crisp Fuzzy Score of The First Stage and The Second Stage	Status (Below 0.1 for Confirmation)
1	0.681	0.764	0.08	confirmed
2	0.826	0.840	0.01	confirmed
3	0.549	0.549	0.00	confirmed
4	0.549	0.549	0.00	confirmed
5	0.694	0.736	0.04	confirmed
6	0.694	0.701	0.01	confirmed
7	0.597	0.583	0.01	confirmed
8	0.646	0.646	0.00	confirmed
9	0.597	0.583	0.01	confirmed
10	0.854	0.854	0.00	confirmed
11	0.826	0.840	0.01	confirmed
12	0.757	0.757	0.00	confirmed
13	0.694	0.681	0.01	confirmed
14	0.715	0.701	0.01	confirmed
15	0.646	0.646	0.00	confirmed
16	0.674	0.674	0.00	confirmed
17	0.694	0.694	0.00	confirmed
18	0.701	0.708	0.01	confirmed
19	0.646	0.646	0.00	confirmed
20	0.660	0.688	0.03	confirmed
21	0.715	0.715	0.00	confirmed
22	0.764	0.785	0.02	confirmed
23	0.750	0.750	0.00	confirmed
24	0.764	0.750	0.01	confirmed
25	0.764	0.750	0.01	confirmed
26	0.757	0.750	0.01	confirmed
27	0.701	0.701	0.00	confirmed
28	0.646	0.688	0.04	confirmed
29	0.563	0.604	0.04	confirmed
30	0.639	0.660	0.02	confirmed
31	0.556	0.556	0.00	confirmed
32	0.563	0.563	0.00	confirmed
33	0.646	0.632	0.01	confirmed
34	0.618	0.604	0.01	confirmed
35	0.660	0.667	0.01	confirmed
36	0.701	0.701	0.00	confirmed
37	0.722	0.722	0.00	confirmed
38	0.688	0.688	0.00	confirmed
39	0.750	0.750	0.00	confirmed
40	0.646	0.688	0.04	confirmed
41	0.743	0.729	0.01	confirmed
42	0.708	0.708	0.00	confirmed
43	0.590	0.590	0.00	confirmed
44	0.639	0.639	0.00	confirmed
45	0.590	0.590	0.00	confirmed

Row	Crisp Fuzzy Score of The First Stage	Crisp Fuzzy Score of The Second Stage	Difference of Crisp Fuzzy Score of The First Stage and The Second Stage	Status (Below 0.1 for Confirmation)
46	0.521	0.521	0.00	confirmed
47	0.590	0.611	0.02	confirmed
48	0.604	0.611	0.01	confirmed
49	0.576	0.563	0.01	confirmed
50	0.514	0.500	0.01	confirmed
51	0.618	0.646	0.03	confirmed
52	0.771	0.743	0.03	confirmed
53	0.722	0.771	0.05	confirmed
54	0.694	0.764	0.07	confirmed
55	0.701	0.771	0.07	confirmed

Conclusion

The purpose of this research was to validate the isomorphism model in Iranian sports federations. This research was conducted using the fuzzy Delphi method with the participation of 12 experts in the field of sports organization management. In this regard, 4 effective factors in organizational isomorphism model were confirmed: 1) 9 Types of Pressures that include Political, Social, Economic, Equipment and Technology, Ideological and Cultural, Legal and International, Structural and Managerial, Intra-Organizational, and Stakeholders and Competitor's Pressures 2) Interventionist Factors that included Social Interventionists, Specialized Interventionists, and Governmental Interventionists. 3) Activist strategies of federations, which had internal reactions and external reactions; 4) Consequences of Isomorphism, which included Positive Consequences and Negative Consequences. As stated in the research literature, the country's sports federations, as the most important institutions affecting the development of sports disciplines in various dimensions of general, professional and championship, face many challenges and issues that can affect their effectiveness. Since in the analysis of these cases, 55 effective indicators were examined in these factors, the findings of this research can clarify the path ahead for sports policy makers and governing organizations and institutions in the field of sports to identify the pressures on sports federations, by analyzing the environment and The existing interventionist agents take action to manage the identified factors and adopt reactions, so that they can guide this process of isomorphism in order to highlight the positive consequences and control and eliminate the negative consequences.

Research limitations

Among the limitations of this research was the non-cooperation of some sports federations in the qualitative phase of the research. Another limitation was managing time and coordinating the right time for interviews with top managers due to the interference of internal and external meetings of the federations.

Acknowledgments

We are grateful to all the top managers of the sports federations, sport managers, professors and experts in the field of sport management, and the respected reviewers of this publication who helped us in carrying out and promoting this research.

Conflicts of Interest

There is no conflict of interest.

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